

AMENDMENT TO THE DRAWINGS

Please remove sheet No. 3 of the drawings on the basis that this sheet contained a description of the reference numerals, now contained in the specification.

REMARKS

Applicants respectfully requests reconsideration. Claims 1-11 were previously pending in this application. By this amendment, Applicants are canceling claim 2 without prejudice or disclaimer. Claims 1, 4, 6, 8, and 11 have been amended. As a result, claims 1 and 3-11 are pending for examination with claims 1 and 11 being independent claims. No new matter has been added.

Objections to the Drawings

The Office Action objected to sheet No. 3 of the drawings on the basis that sheet No. 3 was a description of the reference numerals. Applicants have amended the drawings and removed sheet No. 3. This specification is being amended to recite the description of the reference numerals previously listed on sheet No. 3 of the drawings. Thus no new matter has been added.

Accordingly, withdrawal of this objection is respectfully requested.

Objections to the Specification

The Examiner objected to Brief Description of Drawings section on the basis that each new sentence should start a new paragraph. Applicants have amended the specification accordingly. No new matter has been added.

Accordingly, withdrawal of this objection is respectfully requested.

Rejections under 35 U.S.C. §112

The Office Action rejected claims 6 and 11 under 35 U.S.C. §112 as supposedly being indefinite.

Claim 6 has been amended so that the term “anatase type” has been amended by deleting the term “type.”

Claim 11 has been amended by replacing the word “using” at line 3 with “providing.” Also, the word “having” at line 4 has been replaced with the word “retaining” and the words “retained by” have been replaced by “with.”

Accordingly, withdrawal of the rejection of claims 6 and 11 under 35 U.S.C. §112 is respectfully requested.

Rejections Under 35 U.S.C. §102

The Office Action rejected claims 1 and 4-11 under 35 U.S.C. §102 as supposedly being anticipated by Uchida et al., "Application of Titania Nanotubes to a Dye-Sensitized Solar Cell," Electrochemistry, June 2002, Vol. 70, No 6, pages 418-420 ("Uchida"). Applicants respectfully disagree.

Claims 1 and 4-10

Claim 1, as amended, is directed to a dye-sensitized photoelectric transfer device comprising a semiconductor layer containing titania nanotubes, and a sensitizing dye retained by the titania nanotubes, wherein the sensitizing dye has no acidic substituents.

Nowhere does Uchida teach a sensitizing dye having no acidic substituents. Therefore, it is respectfully asserted that amended claim 1 patentably distinguishes over Uchida, such that the rejection of claim 1 under §102 as purportedly being anticipated by Uchida should be withdrawn.

Claims 4-10 depend from claim 1 and are patentable for at least the same reasons.

Furthermore, the Office Action made a number of assertions regarding Uchida which the Applicants reserve the right to argue at any time. These assertions includes: (1) the dye is inherently retained by the nanotubes of Uchida; (2) the titania of Uchida is anatase; and (3) the particles of ruthenium dye do not associate with each other. (Office Action, page 4, lines 17-21). Applicants request that if the rejection of claim 4 under §102 as purportedly being anticipated by Uchida be maintained, a reference be provided that teaches that Uchida's particles of ruthenium dye do not associate with each other.

Claim 11

Claim 11, as amended, is directed to a method of manufacturing a dye-sensitized photoelectric transfer device, comprising providing a semiconductor layer containing titania nanotubes and retaining a sensitizing dye with the titania nanotubes, wherein the sensitizing dye has no acidic substituents.

Nowhere does Uchida teach a sensitizing dye having no acidic substituents. Therefore, it is respectfully asserted that amended claim 11 patentably distinguishes over Uchida, such that the rejection of claim 11 under §102 as purportedly being anticipated by Uchida should be withdrawn.

Rejections Under 35 U.S.C. §103

The Office Action rejected claims 1-11 under 35 U.S.C. §103(a) as supposedly being unpatentable over Uchida in view of U.S. Patent No. 6,376,765 (“Wariishi”) and U.S. Patent No. 6,586,670 (“Yoshikawa”). Applicants respectfully disagree.

Applicants disagree that there would have been motivation to combine the dyes of Wariishi or Yoshikawa with the teachings of Uchida. Applicants disagree that there would have been motivation to combine a sensitizing dye having no acidic substituents with the teachings of Uchida directed to titania nanotubes. Nowhere in Uchida, Wariishi, or Yoshikawa is there motivation that photoelectric transfer devices including titania nanotubes would benefit from sensitizing dyes having no acidic substituents. *Nanotubes of a material are known to exhibit different properties from other forms of a material, and thus sensitizing dyes suggested for non-nanotube forms of a material (as done by Wariishi and Yoshikawa) would not be obvious to use as sensitizing dyes for a nanotube form of a material.* Uchida specifically uses a ruthenium dye having an acidic substituent to sensitize his titania nanotubes, and hence one of ordinary skill in the art would have not been motivated to use dyes having no acidic substituents. (Uchida, page 419, lines 23-26). If the rejection is to be maintained, Applicants request that a prior art citation of motivation be presented regarding sensitizing titania nanotubes using a dye having no acidic substituents.

The Office Action also asserts that it would have been obvious to combine the use of mixtures of two or more dyes with the titania nanotubes of Uchida, so as to obtain a larger photoelectric conversion region and a higher conversion efficiency. Applicants note that although Wariishi, or Yoshikawa, may teach using two or more sensitizing dyes with non-nanotube forms of materials, there is no teaching that using mixtures of dyes with nanotubes exhibits the same properties as with non-nanotubes. As known by those of ordinary skill in the art, nanotubes of a material can exhibit totally different properties than a non-nanotube form of a material, and therefore one of ordinary skill in the art would not have been motivated to combine the teachings

from art relating to material forms other than nanotubes with the teachings from art relating to nanotubes. Thus one of skill in the art would not have been motivated to combine the teaching of Wariishi, or Yoshikawa, relating to using two or more sensitizing dyes with the nanotubes of Uchida.

Accordingly, withdrawal of the rejection of claims 1-11 under 35 U.S.C. §103 is respectfully requested.

CONCLUSION

In view of the above amendment, Applicants believe the pending application is in condition for allowance. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Dated: 7/07/06
x7/07/06x

Respectfully submitted,

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